

2. (Twice Amended) A method for converting benzene and other aromatic hydrocarbons to C7 and C8 aromatic hydrocarbons, which method comprises contacting the steps of:

first removing non-aromatics from said crude aromatic hydrocarbon material thereby reducing the non-aromatic compound content of said material to 1 % by weight or less, contacting the reduced non-aromatic content starting material ~~a starting material comprising aromatic hydrocarbons, wherein said hydrocarbons comprise at least benzene, and a non-aromatic compound content of greater than 1% by weight, with a catalyst in the presence of hydrogen to perform at least one reaction selected from the group consisting of transalkylation, dealkylation, and disproportionation, wherein said non-aromatic compounds are first removed from a crude aromatic hydrocarbon material that contains said benzene and non-aromatic compounds, thereby reducing the non-aromatic compound content of said material to 1 % by weight or less, and thereafter the material is converted in said reaction into~~ to diminish benzene content and produce C7 or C8 aromatic hydrocarbons.

10. (Twice Amended) A method for producing C7 and C8 aromatic hydrocarbons, which comprises mixing a fraction obtained through gasoline fractionation comprising benzene, with an aromatic hydrocarbon material that contains C9+ aromatic hydrocarbons to create a mixture having a non-aromatic compound content greater than 1% by weight, reducing said non-aromatic compound content of said mixture to 1 % by weight or less, then reacting the mixture with a catalyst containing mordenite and between 0.01 to 5% rhenium to thereby diminish benzene content and convert the aromatic hydrocarbons therein, and separating the resulting C7 and C8 aromatic hydrocarbons from the reaction mixture.

Please cancel Claim 9 without prejudice and without disclaimer of the subject matter contained therein.

Remarks

Applicants have amended independent claims 1, 2, and 10 without introducing new matter. Claim 9 has been canceled without prejudice and without disclaimer of the subject matter contained therein. Claims 1 - 3, 5-8 and 10 remain pending.

Priority

Applicants note with appreciation the acknowledgment of the claim of foreign priority to Japanese Patent Application 11-169100 filed on June 16, 1999 under 35 U.S.C. § 119. Applicants also note that the Examiner has indicated that the certified copies of the priority documents have been received.

Applicants note, however, that this priority information does not appear on the Official Filing Receipt. Accordingly, a Request for a Corrected Filing Receipt is filed contemporaneously herewith.

Election/Restrictions

The April 24, 2002 Office Action sets out a Restriction Requirement under 35 U.S.C. § 121. Group I of the Restriction Requirement includes "Claims 1, 2, 5-10, drawn to a general process including transalkylation, dealkylation, or disproportionation, classified in class 585, subclass 400-489." Group II includes "Claim 3, drawn to a transalkylation process, classified in class 585, subclass 470.

Applicants hereby elect Group I, Claims 1, 2, 5-10, with traverse. Applicants respectfully submit that the Restriction Requirement is improper.

MPEP § 803 discusses the proper application of the Restriction Requirement.

Importantly, the MPEP directs

If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.

CRITERIA FOR RESTRICTION BETWEEN PATENTABLY DISTINCT INVENTIONS

There are two criteria for a proper requirement for restriction between patentably distinct inventions:

(A) The inventions must be independent (see MPEP §§ 802.01, §§ 806.04, §§ 808.01) or distinct as claimed (see MPEP §§ 806.05 - §§ 806.05(I)); and

(B) There must be a serious burden on the examiner if restriction is required (see MPEP §§ 803.02, §§ 806.04(a) - §§ 806.04(I), §§ 808.01(a), and §§ 808.02).

(Emphasis added.) Assuming, arguendo, that the invention set out in the groups of the Restriction Requirement satisfy (A) above, by being independent or distinct, Applicants respectfully submit that there is no serious burden on the Examiner under (B) that justifies the requirement for restriction. The MPEP clearly establishes the PTO policy that where the examination can be made without serious burden, the Examiner must examine the entire application on the merits. MPEP § 803 continues, indicating that the Examiner can make a *prima facie* showing of a serious burden by showing separate classification, or separate status in the art, or a different field of search. In the present case, Claim 3 is classified in class 585, subclass 470, which is a subset of the classification of Group I in class 585, subclasses 400-489. Accordingly, contrary to page 2 of the Office Action, the inventions have not been classified differently and, therefore, examination on the merits of the entire application would not be a serious burden on the Examiner. Restriction for examination purposes, is therefore, improper.

The second portion of the Restriction Requirement requests an election of species. Applicants note this appears to be more appropriate, and related to the Markush restriction

practice set forth in MPEP § 803.02. The Examiner has indicated that he has made a provisional election of species drawn to the transalkylation process. Applicants hereby elect that species. All of the claims are related to that species. Independent Claims 1 and 2 set forth the transalkylation process in a Markush grouping. Under the Markush restriction practice of MPEP § 803.02, Applicants hereby elect the transalkylation species for examination on the merits.

Applicants note the Examiner's indication that Claim 10 is generic. The non-elected species are not being canceled from the claims, but merely held in abeyance until allowance of a generic claim, or in the Markush practice of the claims directed to the transalkylation process.

Applicants respectfully request reconsideration of the Restriction Requirement and treatment on the merits based upon the election of the transalkylation process species.

Claims Rejections

Applicants' independent Claims 1, 2 and 10 each require a starting material containing aromatic hydrocarbons, including benzene and other hydrocarbons. Additionally, the starting material contains non-aromatic compounds in an amount of less than or equal to 1% by weight. Claims 1 and 2 have been amended to clarify this. The starting material is contacted with a catalyst to facilitate conversion into C7 or C8 aromatic hydrocarbons. Hydrogen is present in the reaction. As a result of the reaction, the benzene content in the product is reduced from that of the starting material, as clearly stated on page 7, line 3 of applicants' original specification, and demonstrated in Example 1.

Claims 1, 3 and 5-8 stand rejected under 35 U.S.C. § 102(b) as anticipated by or alternatively under 35 U.S.C. § 103(a) as obvious over Buchanan et al, (WO 96/24568). Buchanan discloses a process of converting a feedstock containing C9+ aromatics and at

least one of benzene or toluene in the presence of a zeolite catalyst. Positive hydrogen pressure is used during the process. Buchman discloses that a zeolite having a CI of 0.5 - 3 can be used.

It is well settled in the patent law that to anticipate a claim, a single prior art reference must disclose each and every element of the claimed invention. Buchanon simply does not teach or even suggest a method resulting in reduction of benzene content as claimed by applicants. In fact, Buchanon Tables 2 and 3 indicate that the benzene content actually increases as a result of the process. Thus, Buchanon does not, and cannot, teach each and every claimed element as required to sustain an anticipation rejection under 35 U.S.C. § 102. Withdrawal of the rejection for anticipation is respectfully requested.

It is equally well settled that to establish obviousness, there must be a motivation to combine or modify the references and a reasonable expectation of success of the combination or modification. Applicants respectfully submit that there is no such suggestion or motivation. First, in light of the discussion above, Buchanon simply does not suggest a method which reduces benzene content while producing C7 and C8 hydrocarbons as claimed. Second, there is no motivation to even look at Buchanon for modification, since one of the goals of applicants' invention, to diminish benzene content, is directly opposed to Buchanon's teaching of increased benzene content in the product. Those skilled in the art would not be motivated to alter Buchanon to reduce benzene content in light of the clear teachings in Buchanon of increased benzene content. Furthermore, given these teachings, there can be no reasonable expectation of success that the Buchanon process could be modified to reduce benzene content while producing C7 and C8 hydrocarbons. Applicants respectfully submit that the rejections based on Buchanan '568 be withdrawn.

Claim 9 stands rejected under 35 U.S.C. § 103 as unpatentable over Buchanon in view of Haag et al. (U.S. Patent No. 4,016,218). Applicants respectfully submit that the

obviousness rejection based on the hypothetical combination fails for the reasons stated above with regard to Buchanan alone. Hypothetical combination with Haag '218 does not overcome the deficiencies of Buchanan as set forth above. Haag discloses that CI of a synthetic mordenite is 0.5. Applicants have amended independent Claims 1 and 10 to include 0.01-0.5% rhenium as claimed in original Claim 9. The references are silent with respect to rhenium content. Accordingly, withdrawal of the 35 U.S.C. § 103 rejection is respectfully requested.

Claims 2 and 10 stand rejected under 35 U.S.C. § 103 as obvious over Buchanan in view of disclosures made by Applicant in the Specification.

Applicants respectfully submit that for the reasons stated above, Buchanan does not render the claimed invention obvious.

Additionally, Applicants respectfully submit that the rejection uses the Applicants' own teachings against them, which is simply not proper. The Court of Appeals for the Federal Circuit, in In re Sang-Su Lee, has recently reiterated its long-standing position that

It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).


As pointed out in the rejection, Applicants acknowledge that those skilled in the art have known how to reduce non-aromatic compounds in hydrocarbon feedstocks. However, there is no teaching or suggestion to combine this prior art practice with the method disclosed in Buchanan, outside of the Applicants own disclosure. Lack of motivation is evidenced by the fact that Buchanan is silent with respect to the non-aromatic compound content in the feedstock except for the references in Tables 2, 3 and 4. There is no discussion in Buchanan that the feedstock contains a reduced non-aromatic content compared to a starting material. Accordingly, there is no recognition that a low non-aromatic content is desirable. At best,

Buchanan might motivate one skilled in the art to experiment with various non-aromatic contents. However, the CAFC has repeatedly stated that obvious-to-try is not the standard for an obviousness determination. Here, one skilled in the art would first have to experiment with various levels of non-aromatic content, determine that high levels have unsatisfactory results, and then determine to reduce non-aromatic content prior to conversion -- all without direction to do so from Buchanan or a reasonable expectation of success.

The rejection, therefore, can not stand. Applicants respectfully request withdrawal of 35 U.S.C. § 103 obviousness rejections.

Applicants respectfully submit all claims are now in condition for allowance. Early reconsideration and allowance of all pending claims is, therefore, respectfully requested.

Respectfully submitted,



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